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LISTS OF RESEARCH PROJECTS AND INNOVATIONS OF THE USSR AUTOMOBILE AND TRACTOR INDUSTRY

This report consists of six lists of projects and innovations, for which the original list numbers have been retained. Lists 2-5 for February - May 1951, in the first section below, give research and experimental projects carried out by various institutes and plants of the Ministry of Automobile and Tractor Industry USSR. Lists 1 and 2 for April and May 1951, in the second section, give innovations and inventions put into practice in enterprises of the same ministry.

I. SCIENTIFIC RESEARCH AND EXPERIMENTAL WORK CARRIED OUT BY INSTITUTES AND PLANTS OF THE MINISTRY OF AUTOMOBILE AND TRACTOR INDUSTRY USSR

List No 2, February 1951

Yaroslavl' Automobile Plant

Influence of air pressure in the block on fuel consumption of the YAZ-204 motor.

An instrument for analyzing and a method of measuring the transparency of exhaust gases from the YAZ-204 motor.

Filter elements for the fine fuel filter of the YAZ-204 motor; third stage of experiment.

Central Design Bureau of the Bearing Industry

An instrument for measuring the diameter, degree of ovalness, and taper of holes from 3 to 10 millimeters in diameter.

An instrument for measuring the play of outer raceways of radial ball bearings.

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Modernization of the KON 101/1, 002, 003, and 264 instruments used in mass [illegible]

An instrument for measuring the angle and diameter of the grooves of inner tapered raceways with openings from 65 to 100 millimeters for roller bearings.

An instrument for checking for nonperpendicularity of the bearing bores (from 17 to 70 millimeters) with respect to the face.

An instrument for measuring the external diameter of raceways with bores from 12+ to 215 millimeters

An instrument for checking the angle of inner tapered raceways with bores from 17 to 65 millimeters

An instrument for checking the play of outer raceways of tapered roller bearings with external diameters up to 250 diameters

An instrument for measuring radial play of assembled radial bearings.

An instrument for checking nonperpendicularity of the face bore of inner raceways with bores from 70 to 150 millimeters in diameter (model 2)

Moscow Automobile Plant imeni Stalin

Zinc-ate galvanizing

Substituting steel plates with protective coatings for brass in radiator plates

Factory testing of the experimental ZIS-156 gas-operated truck in a 10,000-kilometer test run

Testing of NII GSM-1 apparatus for analyzing the detergent properties of supplemented oils

Orgavtoprom (State Trust for the Organization of the Automobile Industry)

Between-operations crating for parts being machined in automobile-tractor plant machine shops Part 1

Diamondless truing of grinding wheels

Instructions for using diamondless truing devices.

List No 3, March 1951

Orgavtoprom

Hard surfacing automobile and tractor parts.

Increasing the wear resistance of dies for cold stamping and of plungers for horizontal forging machines by shot-blast treatment and by fusing on hard alloys.

Polishing automobile parts by the fluid method.

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Quantitative analysis of pig iron for percentages of magnesium, boron, and titanium (when small quantities of these elements are present) by spectrographic methods and analysis of magnesium on the steeloscope.

High-speed cutting processes using face mills with inserted multiedged hard-alloy blades

Technology of the commercial manufacture, and broadening of the applications of P-Orgavtoprom binder

A formula for fixing norms and normative consumption of metal in hot stamping on hammer and horizontal forges

Setting up norms for the consumption of basic materials in capital, average and current repairs in the USSR automobile and tractor industry

Experimental work in selecting metal-ceramic friction material for oil bath work

A gas cupola furnace for flameless combustion

A process for producing and checking the surface finishes on automobile parts that give the greatest wear resistance Part 1

Computing norms of chemicals and anodes, and projected norms of chemicals and anodes expended in applying protective metal coatings.

Increased the coefficient of utilization of sheet metal by using rational layouts and up-to-date stamping methods in plants of the USSR automobile and tractor industry.

Stalingrad Tractor Plant

Spectrum analysis of high-speed tool steels

Application of a new design of ring-shaped head thermocouple in niter and oil baths

Investigation of the possibility of sealing up small blisters on Silumin castings

The use of TsAM-105 zinc alloy for repairs on machine-tool equipment.

Kharkov Tractor Plant

Application of P-Orgavtoprom binder in the plant foundries.

Making radiator cores by dipping in lead.

Durability of 18KhGT steel (depending on method of heat treatment used), as compared on 20Kh steel.

Scientific Research Institute for Automobile Instruments

Performance of motorcycle equipment and instruments during normal operation of the M72, M1A, and K1B motorcycles

Construction of a starter for motors with a cylinder capacity of 5.5 liters.

Research on the effect of dimensions of units and the choice of radial construction of governors on low-power generators.

Development of a new process for making ignition coil jackets.

A survey of sheet stamping-drawing technology in the shops of Glavavtoelektrikopribor (Main Administration of Electrical Automobile Instruments) plants, and development of an efficient method of stamping and drawing flanged parts.

NAMI (Scientific Research Automobile and Automobile Motor Institute)

Testing of the ZIS-150 truck on compressed gas and gasoline.

Weight analysis of car bodies. Investigation of the possibility of making the Moskvich body lighter.

Central Design Bureau of Glavmotoveloprom (Main Administration of the Motorcycle and Bicycle Industry)

Chrome plating piston rings for the M1A motorcycle at the Moscow Motorcycle Plant.

List No 4, April 1951

NAMI

Laboratory testing of two NAMI-015 gas generator motors.

The operation of idling economizers on automobiles.

Research on the best method of determining the antiknock rating of automobile gasolines.

The effect on cylinder wear of a thin film of fuel in the intake pipe of a motor.

Wear on the cylinder walls (zerkala) of automobile motors in relation to the system of lubrication used.

Testing of a pneumatic drive for trailer brakes with various types of brake-control valves.

An instrument for recording the curvature and determining the stresses in the leaves of a spring.

Stand testing of an experimental model of hydromechanical differential transmission.

Starting motors at low temperatures (testing of the Moskvich motor with antifreeze and winter-grade oil).

Designing an experimental hydraulic transmission.

Experimental research on a steering mechanism with hydraulic drive.

Gasification of damp firewood of various sizes.

Operation of the ZIS-150 truck on compressed gas.

Air filter for the gas generator motor NAMI-015.

Gas generator vehicles with ZIS-5-VK motors.

A method of calculating vertical oscillation of vehicles

Plastic coatings to increase the life of automobile springs.

Laboratory tests of the Ural ZIS motor intake system.

Research on angular oscillation of vehicles

Research on rubber suspensions.

Testing of a pneumatic suspension

Testing of the new type GN-56 and G-29V generators with RRN-59 and RR-28 relay regulators for the Moskvich car

List No 5, May 1951

NATI (Scientific Automobile and Tractor Institute)

Research on the effect of surface finishes on running-in and wear resistance.

Effect of surface hardening in increasing fatigue resistance of diesel tractor crankshafts

Type designation and standardization of connectors on tractors.

An apparatus for testing agricultural tractor transmissions for rigidity.

Research on materials and methods of surface hardening for caterpillar links.

Comparative stand testing of the series DT-54 and experimental DT-54 radiators.

Research on the smoothness of operation of caterpillar tractors.

Construction of a "tensometer" setup for research on the track system of the caterpillar tractor

Research on an antifriction material for tractor motor bearings [for protection from] combustion caused by shrinking.

Structural analysis of the chassis of agricultural tractors.

Research and development of a suspension system for agricultural tractors. Suspension systems for wheeled and caterpillar tractors KD-35 and KDP-35.

Research on cylindrical roller bearings TsKB-504K in the support rollers of the DT-54 tractor suspension.

Structural analysis of agricultural tractors. Division for Review of New Materials and Technological Approaches.

Improvement of the starting system of the D-35 and D-54 motors.

Results of research on a motor with a turnover chamber.

Prospects for developments in the design of agricultural tractors. Division for Structural Analysis of Tractor Diesels.

Research on strength reserves of motor parts. Torsiographing of the DT-54 motor.

A balancing device for testing blowers and water pumps for tractor diesels.

Development of a braking system for tractors with molded or pressed brake linings instead of "ferrodo" woven band linings.

Development of equipment for testing tractors Rating and explanatory notes toward projects for a rotating dynamometer with hydraulic and electrical means of measuring the torque on tractor transmission shafts and propelling systems.

II. INVENTIONS AND INNOVATIONS PUT INTO PRACTICE IN ENTERPRISES OF THE MINISTRY OF AUTOMOBILE AND TRACTOR INDUSTRY USSR

List No 1, April 1951

Moscow Automobile Plant imeni Stalin

A machine for simultaneously stamping the centering bosses, bending, and tempering the leaves of strings. -- S. P. Petukhov and S. F. Rumyantsev.

A device for removing /carbon/ ashes from generators. -- I. N. Dmitriyev.

Expansible slides for increasing the working stroke of a tool. -- I. E. Kubrin

A new composition of VUD /Wood's/ alloy -- A. K. Chirov

A stand for inverting automobile chassis -- A. M Yarkov and N. I. Kukhtarov.

Pig iron for high-wear-resistance piston rings. -- D. P. Glukhov.

A means of restoring storage battery plates. -- A. K. Drachev and G. N. Chuvayev.

An apparatus for joining strips in the continuous automatic stamping of radiator cooling plates -- A. F. Bakanov and G. P. Tambovtsev.

A device for removing surplus tin from radiator cooling tubes. -- V. Z. Babichev, B. P. Dushkin, and others.

Making upsetting punches by casting instead of forging. -- V. G. Tsymbal and V. I. Botezat.

Replacing open deadheads with closed side feeders. -- I. D. Parshin, G. D. Krylov, and A. V. Baranov

Mechanical removal of parts from assembly stands. -- V. A. Sorokin and F. N. Nikitin.

A means of packing threaded joints against the flow of water, oil, gasoline, and compressed air. -- P. N. Manuylov and L. S. Bobkov.

A means of using waste nickel powder in charges in the production of heat-resistant steel. -- I. I. Drozdov.

MZMA (Moscow Low-Power Automobile Plant)

A new method of painting automobile bodies. -- S. D. Kokin.

A method of powder tin plating body parts. -- N. E. Sinitsyn and G. A. Klimov.

Changing the design of door openings to facilitate simultaneous hanging of all the Moskvich car doors. -- A. A. Mininbayev and others

A stand for testing hydraulic hoses. -- I. M. Gus'kov and A. I. Burmistrov.

Second State Bearing Plant

A high-frequency generator (300 cycles per second). -- A. P. Timonin, I. F. Krasnov, and others

A new method of machining raceways for support ball bearings on the Gridley four-spindle automatic machine.

Grinding the internal and external faces of bearing raceways on buffing machines. -- P. Ya. Bromberg

A new method of machining drilled cages. -- A. Ya. Kreymer

List No 2, May 1951

Stalingrad Tractor Plant

A device for removing broken taps and drills from parts. -- Ya. S. Trubnikov.

A device for electric contact sharpening of tools. -- K. M. Arsf'yev and P. A. Osterer.

A fitting for diamondless truing of grinding wheels. -- A. E. Rogozhkin.

An apparatus for determining the moisture content of molding sand. -- V. A. Bogatyr kov and M. K. Slyatkes

A method of restoring bearing bushings rejected because of blisters. -- A. M. Seredin and V. A. Sernov.

Replacing brass strip soldering by spot welding. -- I. S. Savinov.

Automatic engagement of the water feed in TVCh vacuum tube generators in the surface-hardening of parts. -- Ya. Z. Trubnikov.

Mechanizing the feeding of liquid clay to mixers. -- A. K. Pichugin, T. A. Karpov, and others.

An overhead foundry conveyer for flask molding. -- N. N. Popov and N. G. Chetverikov.

Mechanized mounting of caterpillar tracks on tractors. -- I. I. Moiseyev.

Making broaches with welded shanks. -- A. A. Ryabkov and P. I. Zhuk.

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First State Bearing Plant

A controlling and measuring instrument for measuring bearing raceways. -- G. V. Chaovnikov.

Heat treatment of rollers in a muffle furnace instead of in a rotary furnace. -- P. A. Sharapov.

A fitting for hardening bearing raceways without distortion. -- S. A. Kashin and L. P. Krylkov

Construction of welded elevators -- V. G. Kazarinov

The use of tapered retainers after dismantling bearings -- N. I. Karevskiy.

An automatic machine for controlling the diameter and length of rollers and needles. -- M. F. Popov

An automatic loading device for centerless grinding of tapered rollers. -- V. N. Nikolskiy, N. N. Sokolov, and others.

An electric spindle for grinding machines. -- F. K. Mazanov and ENIIPP (Experimental Scientific Research Institute for the Bearing Industry).

An automatic blocking system for horizontal forging machines. -- M. M. Andrianov, M. I. Vasyukov, and others

Khar'kov Tractor Plant

A tongs-press for hardening friction clutch disks for machine tools. -- M. L. Shkolnikov

Crucibleless electric salt baths made of refractory brick. -- F. Ya. Zaytsev.

A device that automatically counts the number of articles taken off a conveyer line. -- A. S. Rasskazovskiy.

A device for opening the bottom of the bucket in loading the charges of steel smelting furnaces -- N. E. Rud'

Removable fixed centers for multicutter semiautomatic lathes. -- O. D. Lukanichev and F. F. Shtan'.

A machine for bending pipes without heating them. -- F. L. Khrushchev.

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